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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/658,181 | 09/09/2003 | Shekar Mallikarjunaswamy | B-5716 865040-1 | 3349 |

36716 7590 08/25/2006

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT PAPER NUMBER

2815

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/658,181 | MALLIKARJUNASWAMY, SHEKAR | |
| | Examiner | Art Unit | |
| | Joseph Nguyen | 2815 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ker et al. (US 2003/0089951).

Regarding claims 1-3 and 5, Ker et al. discloses in figure 14 a semiconductor MOSFET structure having improved electrostatic discharge tolerance, the structure comprising a semiconductor substrate (p-substrate) having an active device surface; in said surface, a MOSFET source region and a MOSFET drain region separated by a channel region; a P type dopant region (P+) subjacent said drain region.

It is noted that the P type dopant region (P+) has dopant ion greater than that of the P well as shown in figure 14 of Ker et al., which is similar to that of the P type dopant region 225 as shown in figure 2A of the instant application (See para [0039] of the instant application). Also, the shape and structure of the P type dopant region of Ker et al. is substantially similar to that of the P type dopant region 225. Therefore, the p type dopant region of Ker et al. can be construed as having dimension selected for

increasing inherent parasitic transistor gain of said MOSFET structure for improving said electrostatic discharge tolerance (para [0041]). On the other hand, the limitation "selected for increasing inherent parasitic transistor gain of said MOSFET structure for improving said electrostatic discharge tolerance" is merely the intended use. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

Regarding claim 4, Ker et al. discloses in para [0041] the high concentration of the P+ dopant region is implanted around the junction under the drain contact to reduce the breakdown voltage, which results in a lower breakdown voltage of the MOS device (para [0042], lines 5-6), and this p+ dopant region is structurally similar to that of the p deep region 225 as shown in figure 2A of the instant application. Therefore, Ker et al. teaches the limitation recited in claim 4 herein.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ker et al. in view of Iwasawa et al. (US 4825102)

Regarding claim 6, Ker et al. discloses in para [0036] a pair of MOSFET (n and p type) including a N-MOSFET and a P-MOSFET. Ker et al. does not disclose the pair of MOSFET comprising a paired N-MOSFET and a paired P-MOSFET connected in a push-pull configuration. However, Iwasawa et al. discloses in figure 1 a paired N-MOSFET 5 and a paired P-MOSFET 4 being connected in a push pull configuration to reduce the power consumption of a drive circuit and improve the output waveform (col. 1, lines 16-21). In view of such teaching, it would have been obvious at the time of the present invention to modify Ker et al. by including the pair of MOSFET comprising a paired N-MOSFET and a paired P-MOSFET connected in a push-pull configuration to reduce the power consumption of a drive circuit and improve the output waveform (col. 1, lines 16-21).

Regarding claim 7, Ker et al. discloses in figure 22 the P deep implant region in the PMOSFET. Since the structures of the P deep implant region in both PMOSFET and NMOSFET are similar to those as shown in figure 2A of the instant application, they are capable of performing the claimed function.

Response to Arguments

Applicant's arguments filed on 06/19/2006 have been fully considered but they are not persuasive.

With respect to claim 1, applicant argues Ker et al. does not disclose a P type dopant region has a dopant concentration and dimensions selected for increasing inherent parasitic transistor gain of said MOSFET structure for improving said

electrostatic discharge tolerance as recited in now amended claim 1. However, as explained above, the shape and structure of the P type dopant region of Ker et al. is substantially similar to that of the P type dopant region 225 of the instant application. Therefore, the p type dopant region of Ker et al. can have dimension selected for increasing inherent parasitic transistor gain of said MOSFET structure for improving said electrostatic discharge tolerance (para [0041]). On the other hand, the limitation, "selected for increasing inherent parasitic transistor gain of said MOSFET structure for improving said electrostatic discharge tolerance" is merely the intended use. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Applicant's arguments with respect to claims 6-7 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

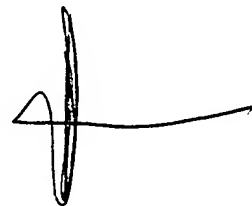
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN

August 16, 2006.

A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line extending to the right.

KENNETH PARKER
SUPERVISORY PATENT EXAMINER